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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,152	05/19/2006	Yoshihiro Kuroda	070456-0111	8070

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MCDERMOTT WILL & EMERY LLP
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WASHINGTON, DC 20005-3096

EXAMINER

MAI, NGOCLAN THI

ART UNIT	PAPER NUMBER
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1793

MAIL DATE	DELIVERY MODE
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08/29/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/580,152	Applicant(s) KURODA ET AL.	
	Examiner NGOCLAN T. MAI	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>5/19/06</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakai et al. (U.S. Patent No. 4,828,611).

With regard to claim 1, Nakai discloses a high hardness sintered diamond compact used for wire drawing and a process for producing the same. The sintered diamond compact comprises 80 to 95 % by volume of diamond particles with at least 95% by volume of the diamond particles having diameter from 0.1 to 2 micron and the remainder of the diamond particles having diameter smaller than 0.1 micron, 0.5 to 5% by volume of (Mo,W)C particles having a diameter not larger than 1 micron and 4.5 to 15% by volume of an iron group metal such as Fe, Ni and Co. See col. 1, line 54 to col. 2, line 12 and col. 3, lines 28-30. Nakai teaches by employing more than 80% by volume diamond, the diamond particles are sufficient contacted to each other. See col. 5, lines 1-3. Although the reference implies the amounts of carbide and iron group metal in volume percent, it is the examiners position that, when converted to mass percent and taking the ratio of the two, this amounts inherently encompass the claimed amounts absent evidence to the contrary. Nakai does not specifically teach carbide particles having particle size of at most 0.8 um. However the carbide size taught by Nakai, i.e., not larger

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than 1 micron, substantially overlaps the range as claimed by the applicant establishing a prima facie case of obviousness in regard to this limitation. Nakai does not teach the claimed texture of carbide particle being discontinuous measure recited in claim 1 or the transverse rupture strength of sintered diamond compact under conditions as recited in the instant claims 3 and 4. The claimed texture of carbide and transverse rupture strength would have been inherently possessed by the sintered diamond compact of cited reference because the instant claimed sintering step as well as composition and particle size are overlapped by the cited reference. Therefore, the burden is on the applicant to prove that the product of the prior art does not necessarily or inherently possesses characteristics attributed to the claimed product. In re Spade, 911 F.2d 705, 708, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990), In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977) and also see MPEP § 2112.01.

3. Claims 2, 5, and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakai et al (U.S. Patent No. 4,828,611) in view of Hara et al. (U.S. Patent No. 4,374,900).

Nakai teaches the sintered diamond object substantially as claims. Nakai differs from the claim in that Nakai does not teach the at least one element selected from the group selected from the group consisting of titanium, zirconium, hafnium, vanadium, niobium, tantalum, columbium and molybdenum is titanium as recited in claims 2 and 5.

Hara teaches a composite diamond compact for a wire drawing die comprising diamond particles, fine carbide powder such as Mo_2C , $(\text{Mo},\text{W})\text{C}$ or WC and iron group metal, wherein part of the former carbide, i.e., $(\text{Mo},\text{W})\text{C}$, Mo_2C and WC can be replaced by titanium carbide, zirconium carbide, hafnium carbide, vanadium carbide, niobium carbide, tantalum carbide,

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chromium carbide, etc. See col. 9, lines 37-43. Since Hara teaches Mo₂C, WC and (Mo,W)C carbide used for making wire drawing die can be partly replaced by titanium carbide, it would have been obvious to one skilled in the art that the same carbide taught by Nakai be partly replaced by TiC as taught by Hara. Furthermore, in view of the replacement of TiC for part of the carbide taught by Nakai, the sintered diamond compact taught by the prior art would be expected to possess the same intensity ratio of applicant's claimed diamond object when measured under the condition as recited in the instant claim 5. See *In re Best*, 195 USPQ 430.

Concerning claims 7 and 8, Nakai teaches the sintered compact diamond is formed by sintering in a condition of a pressure in a range from 40 to 80 Kb (4 to 8 GPa) and a temperature in a range from at least 1200 to 1600 C for 5 to 60 minutes. See col. 6, lines 11-16. The sintering temperature and pressure ranges taught by Nakai substantially overlap the ranges as claimed by the applicant establishing a prima facie case of obviousness in regard to these limitations. Nakai differ from the claims in that Nakai does not specifically teach using a belt-type extra-high pressure apparatus.

Hara teaches super-high pressure apparatus used for forming sintered diamond compact is of belt type. See col. 10, lines 36-38. Therefore it would have been obvious to one skilled in the art to employ a conventional known belt type apparatus as taught by Hara in order to form sintered diamond compact taught by Nakai.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakai in view of JP 09-316587 or Ogata et al (U.S. Patent No. 6,261,329).

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Nakai differs from the claim in that Nakai does not specifically teach the sintered diamond compact contain oxygen in an amount as recited in the instant claim.

JP 09-316587 discloses a high strength fine-grained diamond sintered compact for making tool wherein the oxygen content in the sintered compact is regulated to 0.01 to 0.08 wt%. Ogata also discloses oxygen absorbed at the surface of diamond powder particles in a raw material for manufacturing a diamond sintered body is removed to reduce defects in the sintered body and improve the strength of the diamond sintered body. The percentage of oxygen in the sintered body is preferably in the range from at least 0.005% by weight to 0.08% by weight. See col. 5, lines 20-32. It would have been obvious to one of ordinary skill in the art at the time the invention was made that oxygen content in the sintered diamond compact of Nakai be regulated or controlled to the amount at taught by Ogata or JP 09-316587 in order to obtain sintered diamond compact having improve in strength.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NGOCLAN T. MAI whose telephone number is (571)272-1246. The examiner can normally be reached on 8:30-5:00 PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/
Supervisory Patent Examiner, Art Unit
1793

n.m.